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NEW AUTOMATIC SHOPS, AUTOMATIC TRANSFER MACHINE LINES;
 INTRODUCTION OF CONSTANT-FLOW PRODUCTION IN USSR PLANTS

NEW AUTOMATIC SHOP FOR TRACTOR PISTON PINS -- Moscow, Izvestiya, 3 Jan 53

Testing of a new automatic shop was completed at the Moscow Internal Grinding Machine Plant on 31 December. It is intended for processing piston pins for STZ-NATI and SKH-4 tractors, and consists of two machine-tool lines.

There are six units in each line. The operations are accomplished in the following sequence: cutting of pipes into blanks, machining the top of the blanks, boring the internal diameter, facing, inside and outside chamfering, rough grinding the surface, checking the hardness and accepting or rejecting, finish grinding, lapping the outer surface, washing and drying the pins, checking the dimensions and sorting into size groups, marking the pistons, oil drying, greasing, wrapping, and packing them into boxes. The automatic shop puts out 60 boxes per hour, each box containing five pistons.

Since the piston pins must be manufactured to a high degree of accuracy, calculations in microns are made by the machines. Strict automatic controls permit a deviation in size of not more than 3 microns.

Each automatic line is 100 meters long. The emulsion circulates below the floor. The total length of electrical wiring in the line is approximately 40 kilometers. The checking and measuring point of the automatic shop resembles a miniature laboratory with modern technical equipment.

A part of the new automatic shop has already been shipped to its destination.

Alma-Ata, Kazakhstanskaya Pravda, 10 Jan 53

The automatic shop for processing piston pins for STZ-NATI and KhtZ tractors consists of two machine-tool lines. Each line is made up of 15 unit-type machine tools. Both lines have the same design but produce piston pins of different sizes.

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The automatic shop is attended by one operator and 15 set-up men who keep an eye on its operation.

At predetermined intervals, adjustment of the grinding machines and replacement of worn-out abrasive wheels take place automatically.

In the near future, the new automatic shop will be shipped to the Novorossiysk Krasnyy Dvigatel' Plant, where spare parts for tractors and automobiles are produced.

Designers of the Moscow Internal Grinding Machine Plant and design bureaus of the Ministry of Machine Tool Building designed the new automatic shop. Production workers, engineers, and technicians of the Moscow Internal Grinding Machine, Kalibr, and Krasnyy Proletariy Plants, the plant imeni Ordzhonikidze, and the Gomel' Machine Tool Building Plant imeni Kirov participated in its construction.

In January, the Internal Grinding Machine Plant will complete the assembly and adjustment of a second automatic shop for the production of piston pins. Its productivity will be twice as high as the one which has been assembled.

NINE AUTOMATIC TRANSFER MACHINE LINES BUILT IN 1951 -- Riga, Sovetskaya Latvija, 11 Jan 53

In 1951, Soviet machine tool builders perfected approximately 150 new types of high-duty machine tools and presses, and built nine new automatic transfer machine lines.

The machine tool building industry began producing automatic transfer machine lines in 1946. Whereas the first lines were intended for performing drilling, boring, and threading operations in large housings, in recent times automatic constant-flow lines have been developed for all technological operations.

For example, in 1951, the Moscow Machine Tool Plant imeni Ordzhonikidze manufactured an automatic transfer machine line on which all milling operations on the KD-35 tractor cylinder head can be performed. An automatic line made up of 11 machine tools whose electric motors have a total power of 126 kilowatts was also developed for machining surfaces and holes in cylinder heads of combine motors. This automatic line, in addition to drilling and boring holes, also mills sides and faces. In two-shift operation, four men are needed to attend such a line. To perform this work on individual machine tools, 46 workers and 23 machine tools would be required. -- A. Pavlov, Deputy Minister of Machine Tool Building

NEW AUTOMATIC LINE MANUFACTURES EMERY PAPER BY ELECTROSTATIC METHOD -- Moscow, Komsomol'skaya Pravda, 11 Feb 53

To meet the tremendous demand for emery paper, a group of designers at the All-Union Scientific Research Institute of Abrasives and Grinding have developed an automatic transfer machine line for its production.

All units in the line have been enclosed in air-tight housings which prevent dust penetration. In the event of breakdown or disruption of the technological process, a worker can press a button at any place along the line and stop its entire operation. The greatest achievement made by Leningrad engineers, however, is the sharp improvement in the quality of the product. Emery paper manufactured by a new so-called electrostatic method lasts four times as

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long as it did formerly. At the Moscow Small Displacement Automobile Plant, four bodies can now be polished with the same quantity of emery paper as was formerly required for only one body.

In the new method, a high-voltage current is fed to two wide sheets, the electrodes. A powerful electrostatic field develops between the electrodes. Two belts, one over the other, converge in this field. The lower belt has an evenly sprinkled layer of abrasive powder on it and the upper tough (plotnyy) paper belt is covered with fresh glue. Getting caught in the electrostatic field, the powder crystals rush upward toward the electrode and cut into the glue on the upper belt with great force. The crystals become set in this vertical position. This makes it possible to make full utilization of the cutting properties of the crystals and of the entire emery paper. Previously, the abrasive powder was simply sprinkled on a glued belt. Because of the uneven distribution, many crystals performed practically no cutting at all.

In the new method, powerful bulbs dry the glue. For additional strength, the top of the emery paper is covered with another layer of glue or lacquer. After a second quick drying, the roll is complete. The belt is cut by automatic shears into sheets of finished emery paper.

AUTOMATIC LINE FOR ABRASIVES INDUSTRY -- Moscow, Vechernyaya Moskva, 17 Jan 53

A new automatic line is being assembled alongside a conveyor already in operation at the abrasive tool shop of the Moscow Grinding Products Plant.

The abrasive grains will travel on a conveyor to a mixing chamber from which they will fall into a press mold. The conveyor will carry the items which have been molded under pressure to a furnace; from there they will be transported to a finished products section. More than 100 different operations untouched by human hands will be performed. Only one operator will be needed to control such an automatic line.

CONSTANT-FLOW METHODS TO BE USED AT MACHINE TOOL, TOOL PLANTS IN 1953 -- Moscow, Izvestiya, 11 Feb 53

In 1953, the Ministry of Machine Tool Building USSR will be introducing constant-flow production of machine tools and tools. For example, at the Dmitrov Milling Machine Plant, universal milling machines for high-speed milling with spindle speeds up to 1,800 revolutions per minute will be assembled on conveyers. By the end of the Fifth Five-Year Plan, the output of such machine tools will double, as compared with 1952.

At the Gor'kiy Milling Machine Plant, universal milling machines No 3 with a spindle speed of 1,500 revolutions per minute will be produced by the constant-flow method. The Odessa Plant is organizing constant-flow production of radial drilling machines.

At these plants, a new technology for machining parts is being introduced, as are new attachments and tools. Special unit-type machine tools are being installed.

Tools will also be manufactured in constant-flow lines at the Moscow Frezer, Tashkent, and Tomsk Tool Plants.

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